Volunteer Lake Assessment Program Individual Lake Reports

HOWE RESERVOIR, DUBLIN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	6,592	**Max. Depth (m):**	4.7	**Flushing Rate (yr^{1}):**	5.7
Surface Area (Ac.):	258	**Mean Depth (m):**	2.5	**P Retention Coef:**	0.51
Shore Length (m):	8,900	**Volume (m^3):**	2,585,500	**Elevation (ft):**	1274

TROPHIC CLASSIFICATION

Year	Trophic class

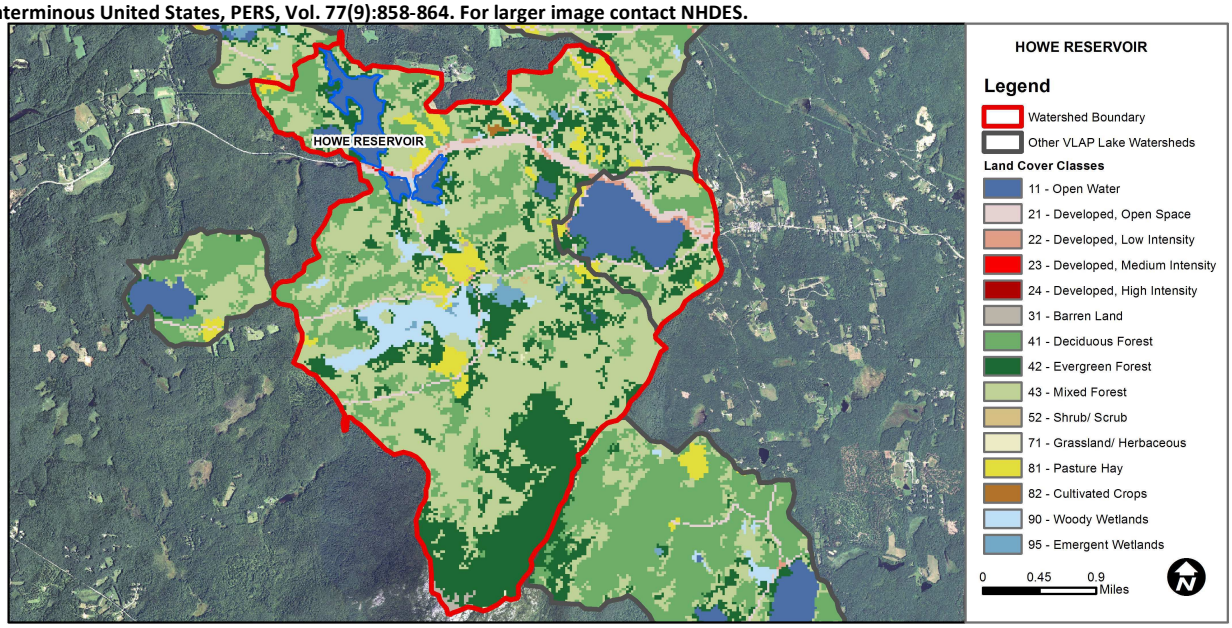
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Cautionary	<5 samples and median is < threshold. More data needed.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Encouraging	< 10 samples and no exceedance of criteria. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



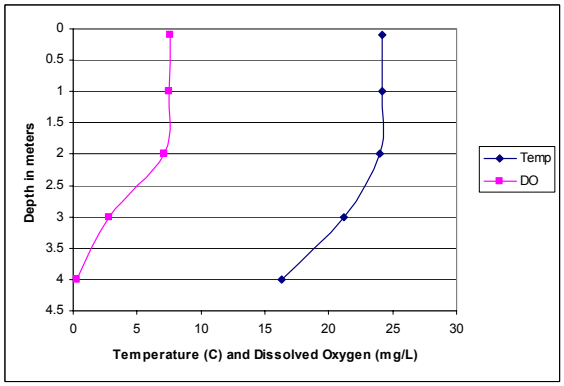
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.07	Barren Land	0.32	Grassland/Herbaceous	0.05
Developed-Open Space	3.78	Deciduous Forest	16.03	Pasture Hay	4.26
Developed-Low Intensity	0.62	Evergreen Forest	22.65	Cultivated Crops	0.09
Developed-Medium Intensity	0.04	Mixed Forest	40.34	Woody Wetlands	3.9
Developed-High Intensity	0	Shrub-Scrub	0.04	Emergent Wetlands	0.6

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
HOWE RESERVOIR, DUBLIN, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were average for most NH lakes.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were low and approximately equal to the NH lake medians.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were relatively low. Charcoal Brook phosphorus levels were slightly elevated.
- **TRANSPARENCY:** Transparency was consistent with that measured in 2010 and 2011.
- **TURBIDITY:** Charcoal Brook turbidity was slightly elevated; however there were low flow conditions and rainfall that occurred 24-72 hours prior to sampling which likely resulted in natural turbidity.
- **PH:** pH levels were lower than desirable and potentially critical to aquatic life.
- **RECOMMENDED ACTIONS:** This was the first year chlorophyll-a and phosphorus data were collected at the deep spot and recommend continued monitoring for these parameters. Also recommend increased monitoring frequency to three events per summer if possible to better assess summer water quality and establish trends.

Dissolved Oxygen & Temperature Profile



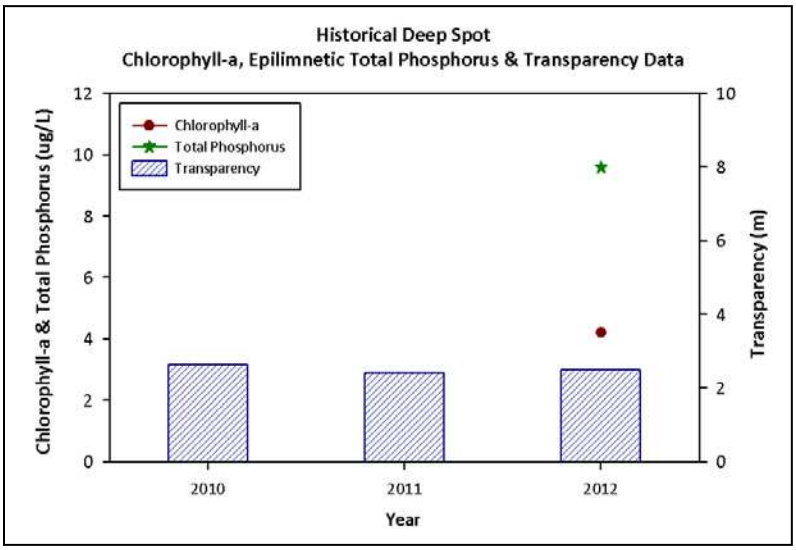
Station Name	Table 1. 2012 Average Water Quality Data for HOWE RESERVOIR								
	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Charcoal Brook Inlet			4	40.5	16			2.07	6.3
Deep Epilimnion	2.00	4.20	3	36.0	10	2.50	3.00	1.18	6.36
Deep Hypolimnion				36.0	9			1.54	5.95

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	More data necessary to establish trend.
Transparency	N/A	More data necessary to establish trend.
Phosphorus (epilimnion)	N/A	More data necessary to establish trend.



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